



**MOBILE DEVICES BUSINESS**

**PRODUCT SAFETY AND COMPLIANCE  
EMC LABORATORY**

**EMC TEST REPORT**

**Test Report Number** – 21339-2 Supplement

**Report Date** – January 9, 2008

The test results contained herein relate only to the model(s) identified. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical characteristics.

As the responsible EMC Engineer, I hereby declare that the equipment tested as specified in this report conforms to the requirements indicated.

Signature: 

Name: Thanigaiselvan Palaniswami

Title: EMC Engineer

Date: January 9, 2008

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THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY A2LA OR ANY AGENCY OF THE U.S. GOVERNMENT.

A2LA Certificate Number: 2518-02

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## Test Report Details

Tests Performed By: Motorola Mobile Devices business (MDb)  
Product Safety and Compliance Group  
600 North US Hwy 45  
Libertyville, IL 60048  
PH (847) 523-6167 Fax (847) 523-4538  
Motorola MDb FRN: 0004321311  
FCC Registration Number: 316588  
Industry Canada Number: IC3908-1

Tests Requested By: Motorola Inc.  
Mobile Devices business  
600 North US Hwy 45  
Libertyville, IL 60048

Product Type: Cellular Phone

Signaling Capability: GSM 850, GSM 1900

FCC ID: IHDP56HK1

Serial Numbers: 011380000000441, 011380000000458,  
011380000000466, 011380000000474

Testing Complete Date: January 7, 2008

## Applicable Standards

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 :

  X   Part 15 Subpart B – Unintentional Radiators

Applicable Standards: ANSI 63.4 2003

**Summary of Testing**

Test #	Test Name	Pass/Fail
1	Field Strength of Spurious Emissions from Unintentional Radiators	Pass
2	AC Line Conducted Emissions	Pass

Test #	Test Name	Margin with respect to the Limit
1	Field Strength of Spurious Emissions from Unintentional Radiators	see results
2	AC Line Conducted Emissions	see results

The margin with respect to the limit is the minimum margin for all modes and bands.

**General and Special Conditions**

The EUT was tested using a fully charged battery.  
 All testing was done in an indoor controlled environment with an average temperature of 22° C and relative humidity of 50%.

**Equipment List**

Manufacturer	Equipment Type	Model No.	Serial Number	Calibration Due Date
Rohde Schwarz	Receiver	ESI26	838786/010	3/19/2008
Rohde Schwarz	Receiver	ESI40	100001	5/02/2008
ETS	Horn Antenna	3115	6222	3/21/2008
ETS	Log-Periodic Antenna	3148	1188	6/18/2008
ETS	Biconical Antenna	3110B	3370	3/15/2008
Attenuator	Weinschel	AS-6	6675	1/31/2008
Attenuator	Weinschel	AS-6	6677	6/21/2008
ETS	LISN	3810/2NM	62907	5/02/2008
ETS	LISN	3810/2NM	62912	5/02/2008
Dell	Laptop Computer	M20	NA	NA
Iomega	Zip Drive	Z100S2	RAMJ28C2BJ	NA
Olympus	Camera	D-600L	4020727	NA

All equipment is on a one-year calibration cycle.

The Dell M20 Laptop Computer and the Olympus D-600L Camera are labeled as DoC. `

The Iomega Zip Drive has the FCC ID – DDXZ100S2.

## **Measurement Procedures and Data**

### **FIELD STRENGTH OF EMISSIONS FROM UNINTENTIONAL RADIATORS**

#### **Measurement Procedure**

The equipment under test is placed inside the semi-anechoic chamber on a wooden table on the turntable center. For each radiated emission, the antenna mast is raised and lowered from 1 to 4 meters and the turntable is rotated 360 degrees to obtain a maximum peak reading on the spectrum analyzer. The final radiated emissions are then measured using an EMI receiver employing a CISPR quasi-peak detector function below 1000 MHz and an average detector function above 1000 MHz. This is repeated for both horizontal and vertical polarizations of the receive antenna.

The field strength of each radiated emission is calculated by correcting the EMI receiver level for cable loss, amplifier gain, and antenna correction factors.

$$\text{Field Strength (dBuV/m)} = \text{EMI Receiver Level (dBuV)} + \text{Cable Loss (dB)} - \text{Amplifier Gain (dB)} + \text{Antenna Correction Factor (1/m)}$$

#### **Test Setup**

The EUT and the host equipment were setup according to the procedures in ANSI C63.4-2003. The EUT was connected to a laptop computer using a USB data cable. The USB data cable is 1 m in length. The parallel and the serial ports of the computer were populated. The EUT was communicating with the laptop computer continuously.

**Measurement Results**

Operating Mode – Rx Mode, Data Transfer Mode.

Notes: Worst Case emissions reported.

30 MHz – 1000 MHz

Frequency	Level	Measured	Transd	Cables	Limit	Margin	Height	Angle	Pol.
MHz	dBuV/m	dBuV	dB	dB	dBuV/m	dB	cm	deg	
35.24	27.57	8.47	11.3	7.8	40	12.4	204	25	VERT
71.44	32.68	16.08	8	8.7	40	7.3	178	220	VERT
75.48	29.62	12.16	8.7	8.7	40	10.4	150	229	VERT
147.28	38.67	15.47	13.1	10.1	43.5	4.8	100	353	VERT
904.48	39.16	-0.75	24	15.9	46	6.8	317	279	HORI
923.56	38.57	-0.75	23.3	16	46	7.4	250	49	VERT
958.92	39.58	-0.46	23.9	16.1	46	6.4	119	204	HORI

Above 1 GHz

Frequency	Level	Measured	Transd	Gain	Limit	Margin	Height	Angle	Pol.
MHz	dBuV/m	dBuV	dB	dB	dBuV/m	dB	cm	deg	
1118.6	36.71	20.08	24.8	8.2	53.9	17.2	366	7	VERT
1124.6	36.9	20.22	24.8	8.2	53.9	17	370	330	VERT
1130.7	36.78	20.06	24.9	8.1	53.9	17.1	365	349	VERT
1841	40.26	19.17	27	5.9	53.9	13.6	304	107	VERT
1922.4	40.71	19.04	27.2	5.5	53.9	13.2	296	314	VERT
1972.2	41.4	19.26	27.6	5.4	53.9	12.5	150	161	HORI
1978.2	41.56	19.35	27.6	5.4	53.9	12.3	379	226	HORI
1982.1	41.58	19.33	27.7	5.4	53.9	12.3	100	286	HORI

Peak Radiated Data for Emissions Above 1GHz

Frequency	Level	Angle	Height	Pol.
MHz	dBuV/m	deg	cm	
1118.2365	53.14	0	400	VER
1126.2525	53.82	352	400	VER
1130.2605	53.03	4	400	VER
1839.6794	52.95	85	300	VER
1923.8477	52.69	325	300	VER
1971.9439	53.06	139	200	HOR
1983.9679	53.47	308	100	HOR

## **AC LINE CONDUCTED EMISSIONS**

### **Measurement Procedure**

Measured levels of ac power line conducted emission shall be the radio-noise voltage from the line probe or across the 50  $\Omega$  LISN port, where permitted, terminated into a 50  $\Omega$  noise meter, or where permitted or required, the radio-noise current on the power line sensed by a current probe.

All radio-noise voltage and current measurements shall be made on each current-carrying conductor at the plug end of the EUT power cord or calibrated extension cord by the use of mating plugs and receptacles on the EUT and LISN. Equipment shall be tested with power cords that are normally supplied using an LISN, the 50  $\Omega$  measuring port is terminated by a 50  $\Omega$  radio-noise meter or a 50  $\Omega$  resistive load. All other ports are terminated in 50  $\Omega$ .

Detectors - Quasi Peak and Average Detector

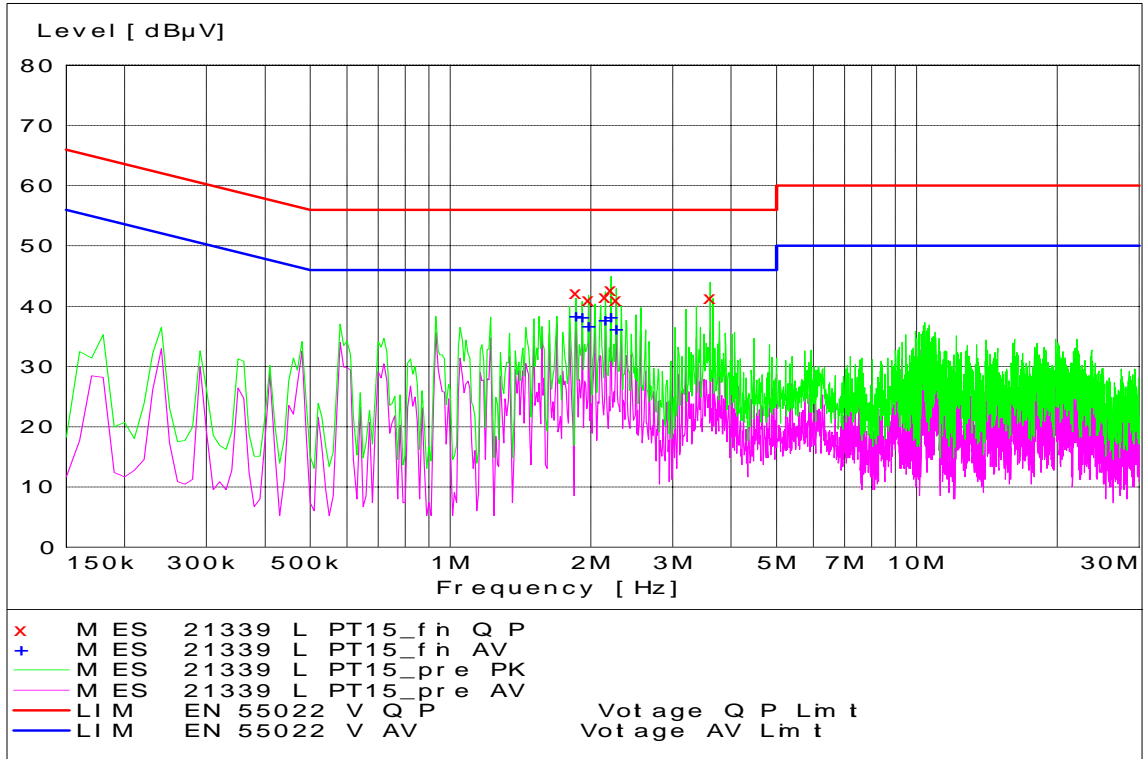
### **Test Setup**

The EUT and the host equipment were setup according to the procedures in ANSI C63.4-2003. The EUT was connected to a laptop computer using a USB data cable. The USB data cable is 1 m in length. The parallel and the serial ports of the computer were populated. The EUT was communicating with the laptop computer continuously.

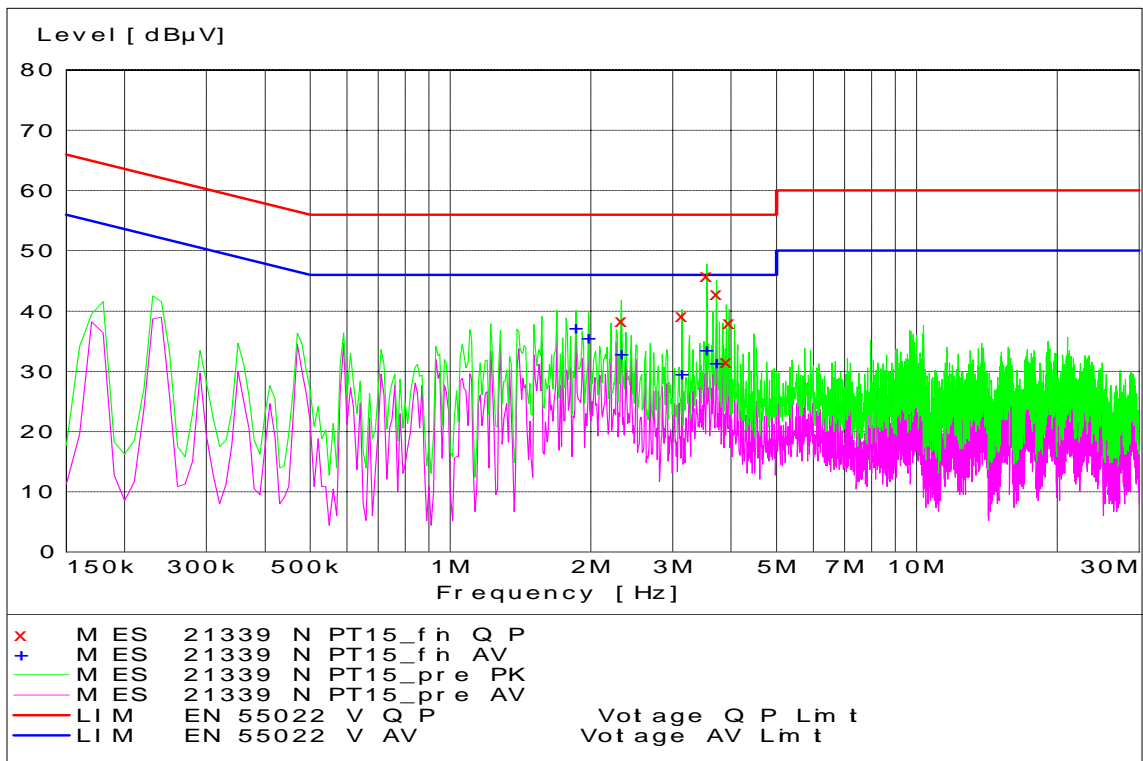
### **Measurement Results**

See attached:

**AC LINE COMPUTER PERIPHERAL - Tx Mode - Line Coupling**



**AC LINE COMPUTER PERIPHERAL - Tx Mode - Neutral Coupling**



**End of Test Report**